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NEWS 3 FEB 02 Simultaneous left and right truncation (SLART) added  
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NEWS 4 FEB 02 GENBANK enhanced with SET PLURALS and SET SPELLING  
NEWS 5 FEB 06 Patent sequence location (PSL) data added to USGENE  
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NEWS 8 FEB 19 New patent-examiner citations in 300,000 CA/Caplus  
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art  
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and 2009 MeSH terms  
NEWS 12 FEB 23 TOXCENTER updates mirror those of MEDLINE - more  
precise author group fields and 2009 MeSH terms  
NEWS 13 FEB 23 Three million new patent records blast AEROSPACE into  
STN patent clusters  
NEWS 14 FEB 25 USGENE enhanced with patent family and legal status  
display data from INPADOCDB  
NEWS 15 MAR 06 INPADOCDB and INPAFAMDB enhanced with new display  
formats  
NEWS 16 MAR 11 EPFULL backfile enhanced with additional full-text  
applications and grants  
NEWS 17 MAR 11 ESBIOBASE reloaded and enhanced  
NEWS 18 MAR 20 CAS databases on STN enhanced with new super role  
for nanomaterial substances  
NEWS 19 MAR 23 CA/Caplus enhanced with more than 250,000 patent  
equivalents from China  
NEWS 20 MAR 30 IMPATENTS reloaded and enhanced  
NEWS 21 APR 03 CAS coverage of exemplified prophetic substances  
enhanced  
NEWS 22 APR 07 STN is raising the limits on saved answers  
NEWS 23 APR 24 CA/Caplus now has more comprehensive patent assignee  
information  
NEWS 24 APR 26 USPATFULL and USPAT2 enhanced with patent  
assignment/reassignment information  
NEWS 25 APR 28 CAS patent authority coverage expanded  
NEWS 26 APR 28 ENCOMPLIT/ENCOMPLIT2 search fields enhanced  
NEWS 27 APR 28 Limits doubled for structure searching in CAS

REGISTRY

NEWS 28 MAY 08 STN Express, Version 8.4, now available  
NEWS 29 MAY 11 STN on the Web enhanced  
NEWS 30 MAY 11 BEILSTEIN substance information now available on  
STN Easy  
NEWS 31 MAY 14 DGENE, PCTGEN and USGENE enhanced with increased  
limits for exact sequence match searches and  
introduction of free HIT display format\_  
NEWS 32 MAY 15 INPADOCDB and INPAFAMDB enhanced with Chinese legal  
status data

NEWS EXPRESS JUNE 27 08 CURRENT WINDOWS VERSION IS V8.3,  
AND CURRENT DISCOVER FILE IS DATED 06 APRIL 2009.

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\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 16:19:18 ON 18 MAY 2009

=> FILE CASREACT  
COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
0.44	0.44

FULL ESTIMATED COST

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FILE CONTENT:1840 - 16 May 2009 VOL 150 ISS 21

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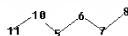
\*\*\*\*\*  
\* \* \* \* \*  
\* CASREACT now has more than 16.5 million reactions \*  
\* \* \* \* \*  
\*\*\*\*\*

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=>

Uploading C:\Program Files\STNEXP\Queries\Series 10\10 588085\STN 10 588085 051809AC.str



chain nodes :

1 2 3 4 5 6 7 8 9 10 11

ring/chain nodes :

12

chain bonds :

1-2 2-3 3-4 5-6 5-10 6-7 7-8 9-12 10-11

exact/norm bonds :

3-4 5-10 7-8 9-12 10-11

exact bonds :

1-2 2-3 5-6 6-7

Match level :

1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS 9:CLASS

10:CLASS 11:CLASS 12:CLASS

fragments assigned product role:

containing 5

fragments assigned reactant/reagent role:

containing 1

containing 9

L1 STRUCTURE UPLOADED

=> D L1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> S L1 SSS SAMPLE

SAMPLE SEARCH INITIATED 16:21:18 FILE 'CASREACT'

SCREENING COMPLETE - 17979 REACTIONS TO VERIFY FROM 1177 DOCUMENTS

27.8% DONE 5000 VERIFIED 116 HIT RXNS

16 DOCS

INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)

SEARCH TIME: 00.00.02

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*

BATCH \*\*COMPLETE\*\*

PROJECTED VERIFICATIONS: 351618 TO 367542

PROJECTED ANSWERS: 1060 TO 2130

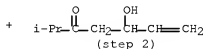
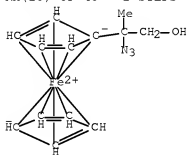
L2 16 SEA SSS SAM L1 ( 116 REACTIONS)

=> D SCAN

L2 16 ANSWERS CASREACT COPYRIGHT 2009 ACS on STN

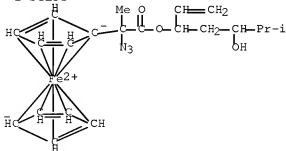
TI Enantiocontrolled preparation of the first stable  
 $\alpha$ -ferrocenylalanine derivatives

RX(23) OF 43 - 2 STEPS



1.1. DMSO, (COCl)<sub>2</sub>,  
CH<sub>2</sub>Cl<sub>2</sub>  
1.2. Et<sub>3</sub>N  
2. SmI<sub>2</sub>, THF

RX(23) OF 43 - 2 STEPS



85%

NOTE: 1) stereoselective, 2) stereoselective

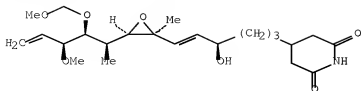
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L2 16 ANSWERS CASREACT COPYRIGHT 2009 ACS on STN

TI Oxytocin analogs with O-glycosylated serine and threonine in position 4

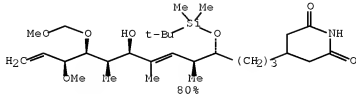


RX(41) OF 188 - 2 STEPS



- 1.1. t-BuSiMe<sub>2</sub>Cl,  
4-DMAP, Et<sub>3</sub>N,  
DME
- 1.2. NaHCO<sub>3</sub>, Water
- 2.1. MeLi, CuCN, Et<sub>2</sub>O
- 2.2. Et<sub>2</sub>O
- 2.3. NH<sub>3</sub>, NH<sub>4</sub>OH,  
Water

RX(41) OF 188 - 2 STEPS



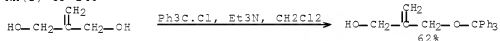
NOTE: 2) stereoselective

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L2 16 ANSWERS CASREACT COPYRIGHT 2009 ACS on STN

TI Four-color DNA sequencing by synthesis using cleavable fluorescent nucleotide reversible terminators

RX(1) OF 248



HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L2 16 ANSWERS CASREACT COPYRIGHT 2009 ACS on STN

TI The catalyzed  $\alpha$ -hydroxyalkylation and  $\alpha$ -aminoalkylation of activated olefins (the Morita-Baylis-Hillman reaction)

RX(243) OF 1372



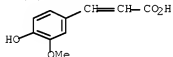
NOTE: regioselective, (C6H11H)2C, CH2Cl2, 0 C to E t./6 h. LDA/THF, -78 C to r.t./3 h. yield 66% Alkylation, Allylic, C-Alkylation, Geoselective, Selective, Substitution

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

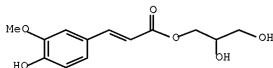
L2 16 ANSWERS CASREACT COPYRIGHT 2009 ACS on STN

TI Continuous synthesis of glyceryl ferulate using immobilized Candida antarctica lipase

RX(1) OF 1



Glycerol, Lipase →



NOTE: biotransformation, enzymic, stereoselective, immobilized triacylglycerol lipase (Chirazyme L-2C2) from Candida antarctica used as catalyst, glycerol with 7.5 weight % water content used as reactant, flow-type reactor system used, alternatively reaction carried out in batch reactor, optimization study, optimized on water content of glycerol and reaction temperature, 75% conversion

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L2 16 ANSWERS CASREACT COPYRIGHT 2009 ACS on STN

TI Asymmetric total synthesis of herbarumin III: Introduction of the syn-1,3-diol moiety from an optically pure hydroxy epoxide resolved by HKR

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0



=> FILE CAPLUS  
COST IN U.S. DOLLARS

SINCE FILE      TOTAL  
ENTRY      SESSION

FULL ESTIMATED COST

4.80      5.24

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FILE COVERS 1907 - 18 May 2009 VOL 150 ISS 21  
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FILE 'CASREACT' ENTERED AT 16:20:11 ON 18 MAY 2009

L1      STRUCTURE UPLOADED  
L2      16 S L1 SSS SAMPLE

— FILE 'CAPLUS' ENTERED AT 16:26:14 ON 18 MAY 2009

=> FILE REG

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION

FULL ESTIMATED COST

0.50	5.74
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STRUCTURE FILE UPDATES: 17 MAY 2009 HIGHEST RN 1147079-26-2

DICTIONARY FILE UPDATES: 17 MAY 2009 HIGHEST RN 1147079-26-2

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L3

1842 SEA SSS FUL L1 ( 11009 REACTIONS)

=> FILE CAPLUS  
COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
123.61	129.83

FULL ESTIMATED COST

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FILE COVERS 1907 - 18 May 2009 VOL 150 ISS 21  
FILE LAST UPDATED: 17 May 2009 (20090517/ED)  
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2009  
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=> \$ L3 AND ((SCANDIUM OR "Group IIIB elements") OR (LANTHANUM OR "Rare earth metals")  
OR (ACTINIUM OR "Actinides"))

1842 L3  
41256 SCANDIUM  
3 SCANDIUMS  
41257 SCANDIUM  
(SCANDIUM OR SCANDIUMS)  
1858683 "GROUP"  
1225823 "GROUPS"  
2590235 "GROUP"  
( "GROUP" OR "GROUPS")  
9309 "IIIB"  
742696 "ELEMENTS"  
974 "GROUP IIIB ELEMENTS"  
( "GROUP"(W) "IIIB"(W) "ELEMENTS")  
151731 LANTHANUM  
8 LANTHANUMS  
151737 LANTHANUM  
(LANTHANUM OR LANTHANUMS)  
273819 "RARE"  
124 "RARES"  
273855 "RARE"  
( "RARE" OR "RARES")

361887 "EARTH"  
 25321 "EARTHS"  
 370757 "EARTH"  
 ("EARTH" OR "EARTHS")  
 961103 "METALS"  
 83917 "RARE EARTH METALS"  
 ("RARE"(W)"EARTH"(W)"METALS")  
 2919 ACTINIUM  
 4 ACTINIUMS  
 2920 ACTINIUM  
 (ACTINIUM OR ACTINIUMS)  
 13113 "ACTINIDES"

L4 11 L3 AND ((SCANDIUM OR "GROUP IIIB ELEMENTS") OR (LANTHANUM OR  
 "RARE EARTH METALS") OR (ACTINIUM OR "ACTINIDES"))

=> D SCAN

L4 11 ANSWERS CAPLUS COPYRIGHT 2009 ACS on STN  
 CC 22-3 (Physical Organic Chemistry)  
 TI The addition of hydroxyl compounds to unsaturated carboxylic acids  
 homogeneously catalyzed by lanthanide(III)  
 ST lanthanide catalyst unsatd carboxylic acid addn; kinetics addn alc unsatd  
 carboxylic acid; mechanism addn diol unsatd carboxylic acid; glycol addn  
 mechanism unsatd carboxylic acid  
 IT Alcohols, reactions  
 Glycols, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition of, to unsatd carboxylic acids, kinetics and mechanism of  
 lanthanide(III) catalyzed)  
 IT Addition reaction catalysts  
 (lanthanide(III) compds., for hydroxylic compds. to unsatd. carboxylic  
 acids, kinetics and mechanism with)  
 IT Nuclear magnetic resonance  
 (of ethylene glycol, effect of lanthanide(III) on, carbon-13 and  
 oxygen-17)  
 IT Stereochemistry  
 (of hydrochlorinations or addns. of glycols to unsatd. carboxylic  
 acids)  
 IT Kinetics of addition reaction  
 (of hydroxylic compds. to unsatd. carboxylic acids mediated by  
 lanthanide(III) compds.)  
 IT Addition reaction  
 (of hydroxylic compds. to unsatd. carboxylic acids mediated by  
 lanthanide(III) compds., mechanism of)  
 IT Hydrochlorination  
 (of unsatd. carboxylic acids in ethylene glycol containing  
 lanthanum trichloride, mechanism and stereochem. of)  
 IT Ethers, preparation  
 RL: PREP (Preparation)  
 (polycarboxylate, from addition of hydroxylic compds. to to unsatd.  
 carboxylic acids, lanthanide(III) catalysts for)  
 IT Rare earth metals, compounds  
 RL: PRP (Properties)  
 (salts, as addition catalysts, for alcs. to unsatd carboxylic acid,  
 kinetics and mechanism with)  
 IT Carboxylic acids, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (unsatd., addition of hydroxyl compds. to, kinetics and mechanism of  
 lanthanide(III) catalyzed)  
 IT 79-10-7, 2-Propenoic acid, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition of ethylene glycol to, kinetics and mechanism of  
lanthanum oxide mediated)

IT 107-21-1, 1,2-Ethanediol, reactions 109-86-4, Ethylene glycol monomethyl  
ether  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition of, to unsatd. carboxylic acids, kinetics and mechanism of  
lanthanide(III) catalyzed)

IT 56-81-5, 1,2,3-Propanetriol, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition of, to unsatd. carboxylic acids, mechanism of lanthanide(III)  
catalyzed)

IT 471-25-0, Propiolic acid 7446-81-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition reaction of, with alcs. kinetics and mechanism of  
lanthanide(III) catalyzed)

IT 15122-44-8 149577-09-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition reaction of, with ethylene glycol, lanthanide(III) catalyst for)

IT 1312-81-8, Dilanthanum trioxide  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst, for addition of alcs. to unsatd. carboxylic acids, kinetics and  
mechanism with)

IT 23248-21-7, Potassium 2-hydroxyethoxide  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst, for addition of ethylene glycol to sodium acrylate)

IT 10025-74-8, Dysprosium trichloride  
RL: PRP (Properties)  
(complexation of, with ethylene glycol, carbon-13 and oxygen-17 NMR and)

IT 10099-58-8, Lanthanum trichloride  
RL: PRP (Properties)  
(dehydration of hydrate and use as catalyst, for addition of alcs. to  
unsatd. carboxylic acids, kinetics and mechanism with)

IT 149-73-5, Trimethyl orthoformate  
RL: PRP (Properties)  
(dehydration of lanthanide(III) hydrates in ethylene glycol or glycerin  
solns. by)

IT 142-45-0, Acetylenedicarboxylic acid  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(hydrochlorination of, in ethylene glycol containing lanthanum  
trichloride, mechanism and stereochem. of)

IT 7647-01-0  
RL: PRP (Properties)  
(hydrochlorination, of unsatd. carboxylic acids in ethylene glycol  
containing lanthanum trichloride, mechanism and stereochem. of)

IT 14762-74-4  
RL: PRP (Properties)  
(nuclear magnetic resonance, of ethylene glycol, effect of  
lanthanide(III) on, carbon-13 and oxygen-17)

IT 149577-20-8P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and purification of, from lithium chloride)

IT 149274-35-1  
RL: PRP (Properties)  
(preparation as catalyst, for addition of alcs. to unsatd. carboxylic acids,  
kinetics and mechanism with)

IT 328-42-7P, Oxalacetic acid 617-42-5P 1609-93-4P 2345-61-1P  
5735-92-2P, 2-Carboxymethyl-1,3-dioxolane 5735-95-5P 89211-34-7P,  
3-(2-Hydroxyethoxy)propionic acid 149577-04-8P, Potassium  
3-(2-hydroxyethoxy)propionate 149577-05-9P,

3-(2-Methoxyethoxy)propionic acid 149577-06-0P, Sodium  
 3-(2-methoxyethoxy)propionate 149577-07-1P 149577-08-2P  
 149577-10-6P 149577-11-7P 149577-12-8P 149577-13-9P 149577-14-0P  
 149577-15-1P 149577-16-2P 149577-17-3P 149577-18-4P 149577-19-5P  
 149577-21-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L4 11 ANSWERS CAPLUS COPYRIGHT 2009 ACS on STN  
 CC 22-4 (Physical Organic Chemistry)  
 TI Lanthanide(III)-catalyzed addition of glycolate to maleate. Investigation  
 of intermediates using multinuclear magnetic resonance spectroscopy  
 ST glycolate addn maleate lanthanum kinetics; gadolinium magnetic  
 relaxation glycolate maleate; dysprosium NMR oxygen glycolate maleate  
 IT Addition reaction catalysts  
 (lanthanum(3+), for glycolate with maleate)  
 IT Magnetic relaxation  
 (of carbon-13, in gadolinium-containing glycolate-maleate system)  
 IT Kinetics of addition reaction  
 (of glycolate with maleate in presence of lanthanum(3+))  
 IT Nuclear magnetic resonance  
 (of water-d2 in glycolate-maleate system containing dysprosium(3+),  
 oxygen-17)  
 IT 2836-32-0, Sodium glycolate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition reaction of, with disodium maleate in presence of  
 lanthanum(3+), kinetics of)  
 IT 371-47-1, Disodium maleate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition reaction of, with sodium glycolate in presence of  
 lanthanum(3+), kinetics of)  
 IT 10099-58-8, Lanthanum trichloride  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts, for addition of glycolate to maleate)  
 IT 10168-81-7, Gadolinium trinitrate  
 RL: PRP (Properties)  
 (magnetic relaxation of carbon-13 in glycolate-maleate system in  
 presence of)  
 IT 10025-74-8, Dysprosium trichloride  
 RL: PRP (Properties)  
 (oxygen-17 NMR of water-d2 in glycolate-maleate system containing)  
 IT 7789-20-0, Water-d2  
 RL: PRP (Properties)  
 (oxygen-17 NMR of, in glycolate-maleate system containing dysprosium(3+))  
 IT 34128-01-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L4 11 ANSWERS CAPLUS COPYRIGHT 2009 ACS on STN  
 CC 33-3 (Carbohydrates)  
 TI Enantioselective synthesis of oasomycin A, part II: synthesis of the  
 C29-C46 subunit  
 ST macrolide lactone glycoside oasomycin A synthon fragment asym prepn;  
 copper tin catalysis diastereoselective aldol addn redn; regioselective  
 reductive ring opening scandium catalysis; intramol  
 heteroconjugate addn diastereoselective; diastereoselective Kocienski



Julia olefination photochem oxidn lactonization

IT Aldol addition catalysts  
(asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Asymmetric synthesis and induction  
Synthons  
(asym. synthesis of C29-C46 subunit of oasomycin A)

IT Lactonization  
Oxidation, photochemical  
(asym. synthesis of C29-C46 subunit of oasomycin A via diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation and lactonization from C29-C38 and C39-C46 subunit)

IT Addition reaction  
(conjugate, stereoselective; asym. synthesis of C39-C46 subunit of oasomycin A via diastereoselective aldol addition and intramol. heteroconjugate addition from di-Ph oxazole)

IT Macrolides  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(glycosides, synthons for; asym. synthesis of C29-C46 subunit of oasomycin A)

IT Glycosides  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(lactones, macrolides, synthons for; asym. synthesis of C29-C46 subunit of oasomycin A)

IT Ring opening  
(reductive, regioselective; asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Ring opening catalysts  
(reductive; asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Reduction catalysts  
(ring opening; asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Aldol addition  
Reduction  
(stereoselective; asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Olefination  
(stereoselective; asym. synthesis of C29-C46 subunit of oasomycin A via diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation and lactonization from C29-C38 and C39-C46 subunits)

IT 144026-79-9, Scandium triflate 184591-69-3  
RL: CAT (Catalyst use); USES (Uses)  
(asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT 60656-87-3 141423-21-4 146431-18-7 221082-61-7  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu

complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT 147849-64-7P 929882-81-5P 929882-82-6P 929882-83-7P 929882-84-8P  
929882-85-9P 929882-93-9P 929883-03-4P 929883-04-5P 929883-05-6P  
929883-06-7P 929883-07-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT 62086-04-8  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT 143436-50-4P, Oasomycin A  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(asym. synthesis of C29-C46 subunit of oasomycin A)

IT 929882-94-0 929882-96-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(asym. synthesis of C29-C46 subunit of oasomycin A via diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation and lactonization from C29-C38 and C39-C46 subunits)

IT 929882-91-7P 929882-92-8P 929883-08-9P 929883-09-0P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(asym. synthesis of C29-C46 subunit of oasomycin A via diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation and lactonization from C29-C38 and C39-C46 subunits)

IT 929875-23-0P 929882-95-1P 929882-97-3P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(asym. synthesis of C29-C46 subunit of oasomycin A via diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation and lactonization from C29-C38 and C39-C46 subunits)

IT 86-93-1 123-11-5, reactions 1099-45-2 2136-75-6 4675-18-7  
101711-78-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(asym. synthesis of C39-C46 subunit of oasomycin A via diastereoselective aldol addition and intramol. heteroconjugate addition from di-Ph oxazole)

IT 102368-34-3P 917988-94-4P 917988-95-5P 917988-96-6P 917988-97-7P  
929882-86-0P 929882-87-1P 929882-88-2P 929882-89-3P 929882-90-6P  
929882-98-4P 929882-99-5P 929883-00-1P 929883-01-2P 929883-02-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(asym. synthesis of C39-C46 subunit of oasomycin A via diastereoselective aldol addition and intramol. heteroconjugate addition from di-Ph oxazole)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L4 11 ANSWERS CAPLUS COPYRIGHT 2009 ACS on STN

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 37, 46

TI Preparation of pentaerythritol triacrylate using SO42/TiO2/La3+ as catalyst

ST pentaerythritol triacrylate esterification solid superacid titania

- sulfated lanthanum catalyst; surfactant pentaerythritol triacrylate prep
- IT Esterification  
Esterification catalysts  
Surfactants  
(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)
- IT Superacids  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)
- IT 7439-91-0DP, Lanthanum, sulfated titania-supported  
13463-67-7DP, Titania, sulfated, lanthanum-modified  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)
- IT 79-10-7, Acrylic acid, reactions 115-77-5, Pentaerythritol, reactions 1312-81-8, Lanthana 7664-93-9, Sulfuric acid, reactions 13463-67-7, Titania, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)
- IT 123-31-9, Hydroquinone, reactions  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)
- IT 3524-68-3P, Pentaerythritol triacrylate  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

- L4 11 ANSWERS CAPLUS COPYRIGHT 2009 ACS on STN
- C 27-10 (Heterocyclic Compounds (One Hetero Atom))
- TI Asymmetric Baylis-Hillman reactions using  
(R)-4-(3-hydroxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid acrylate derivatives in solution and on solid support
- ST Baylis Hillman asym acryloyloxyoxopyrrolidinylbenzoic acid soln solid phase
- IT Addition reaction  
(Baylis-Hillman, stereoselective; asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid derivs. in solution and on solid support)
- IT Asymmetric synthesis and induction  
Solid phase synthesis  
(asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid derivs. in solution and on solid support)
- IT Addition reaction  
(stereoselective; asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid

derivs. in solution and on solid support)  
 IT 280-57-9, DABCO 52093-26-2, Lanthanum(III) triflate  
 RL: CAT (Catalyst use); USES (Uses)  
 (asym. Baylis-Hillman reactions using  
 (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid  
 derivs. in solution and on solid support)  
 IT 67-68-5, DMSO, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (asym. Baylis-Hillman reactions using  
 (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid  
 derivs. in solution and on solid support)  
 IT 105-07-7, 4-Cyanobenzaldehyde 455-19-6, 4-Trifluoromethylbenzaldehyde  
 555-16-8, 4-Nitrobenzaldehyde, reactions 777087-97-5D, polymer-supported  
 777088-07-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (asym. Baylis-Hillman reactions using  
 (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid  
 derivs. in solution and on solid support)  
 IT 862416-18-0P 862416-27-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (asym. Baylis-Hillman reactions using  
 (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid  
 derivs. in solution and on solid support)  
 IT 500166-76-7P 862416-20-4P 862416-21-5P 862416-22-6P 862416-23-7P  
 862416-24-8P 862416-25-9P 862416-26-0P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (asym. Baylis-Hillman reactions using  
 (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid  
 derivs. in solution and on solid support)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L4 11 ANSWERS CAPLUS COPYRIGHT 2009 ACS on STN  
 CC 28-6 (Heterocyclic Compounds (More Than One Hetero Atom))  
 TI Synthesis and Lewis acid catalyzed Claisen rearrangement of  
 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers  
 ST Lewis acid catalyst stereoselective Claisen rearrangement oxazolinyl  
 ether; allyl vinyl ether oxazolinyl stereoselective Claisen rearrangement  
 IT Ethers, preparation  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (allyl; preparation and Lewis acid catalyzed Claisen rearrangement of  
 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)  
 IT Lewis acids  
 RL: CAT (Catalyst use); USES (Uses)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of  
 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)  
 IT Claisen rearrangement  
 Claisen rearrangement catalysts  
 (stereoselective; preparation and Lewis acid catalyzed Claisen rearrangement  
 of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)  
 IT Ethers, preparation  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (vinyl; preparation and Lewis acid catalyzed Claisen rearrangement of  
 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)  
 IT 34946-82-2, Cupric triflate 62086-04-8, Tin ditriflate 126857-69-0,  
 Lutetium triflate 144026-79-9, Scandium triflate 172323-63-6  
 172323-64-7 208242-67-5

RL: CAT (Catalyst use); USES (Uses)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of  
 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)  
 IT 107-18-6, 2-Propen-1-ol, reactions 124-68-5 556-82-1 928-94-9  
 928-95-0 2026-48-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of  
 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)  
 IT 25130-82-9P 107531-92-0P 256394-12-4P 301659-20-1P 301659-67-6P  
 595585-19-6P 595585-20-9P 595585-21-0P 595585-22-1P 595585-23-2P  
 595585-24-3P 595585-25-4P 595585-26-5P 595585-27-6P 595585-28-7P  
 595585-29-8P 595585-30-1P 595585-31-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of  
 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)  
 IT 595585-32-3P 595585-33-4P 595585-34-5P 595585-35-6P 595585-36-7P  
 595585-37-8P 595585-38-9P 595585-39-0P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of  
 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L4 11 ANSWERS CAPLUS COPYRIGHT 2009 ACS on STN  
 CC 33-8 (Carbohydrates)  
 Section cross-reference(s): 22  
 TI Synthesis of poly(hydroxy)carboxylates. Part II. Addition of polyols to  
 maleate homogeneously catalyzed by multivalent metal ions  
 ST alditol addn maleate catalyzed metal ion; alkylation rate alditol maleate  
 metal catalyst; aldonic acid  
 IT Addition reaction  
 (metal ions catalyzed, of alditols with aldonic acids)  
 IT Carbohydrates and Sugars, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alditols, metal ions catalyzed addition of, with maleates)  
 IT Carbohydrates and Sugars, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (aldonic acids, metal ions catalyzed addition of, with alditols)  
 IT Compound (C20H15La2Na3O23), precipitate  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 IT 371-47-1, Disodium maleate 50977-65-6, Dilithium maleate  
 RL: PROC (Process)  
 (addition of, to alditols in presence of metal ion)  
 IT 107-21-1, 1,2-Ethanediol, reactions 111-46-6, Diethylene glycol,  
 reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition of, to maleate in presence of metal ion)  
 IT 149-32-6, meso-Erythritol 131530-64-8  
 RL: PROC (Process)  
 (addition of, with maleate in presence of metal ion)  
 IT 56-81-5, 1,2,3-Propanetriol, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition of, with maleate in presence of metal ion)  
 IT 546-68-9P 7388-28-5P 7446-70-0, Aluminum chloride, reactions  
 7447-39-4, Cupric chloride, reactions 7550-45-0, Titanium tetrachloride,  
 reactions 7646-79-9, Cobalt dichloride, reactions 7646-85-7, Zinc  
 chloride, reactions 7705-08-0, Ferric chloride, reactions 7718-54-9,  
 Nickel dichloride, reactions 7758-94-3, Ferrous chloride 10024-93-8,

Neodymium chloride 10025-76-0, Europium chloride 10025-82-8, Indium chloride 10026-11-6, Zirconium tetrachloride 10043-52-4, Calcium chloride, reactions 10099-58-8, Lanthanum chloride 10138-62-2, Holmium chloride 10361-37-2, Barium chloride, reactions 10361-91-8, Ytterbium chloride (YbCl<sub>3</sub>) 13450-90-3, Gallium trichloride

RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(catalyzed addition by, of alditols to maleate)

IT 7440-70-2DP, Calcium, aldonic acid complex

RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(complexation of, with aldonic acids)

IT 52972-73-3P 52972-74-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and addition of, with maleate in presence of metal ion)

IT 34128-01-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and complexation of, with calcium)

IT 676-46-0P 26535-75-1P 131530-65-9P 131530-66-0P 131530-67-1P  
131530-80-8P 131530-81-9P 131530-82-0P 131530-83-1P 131530-84-2P  
131530-92-2P 131530-93-3P 131543-36-7P 131543-37-8P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and complexation of, with calcium ion)

IT 69-65-8P, D-Mannitol 537-03-1P 7439-91-0DP, Lanthanum,  
ethylenedioxydibutanedioic acid hydroxide complexes 16426-50-9P  
55203-11-7DP, lanthanum complexes 86282-31-7P 131530-43-3P  
131530-85-3P 131530-86-4P 131530-87-5P 131530-88-6P 131530-89-7P  
131530-90-0P 131530-91-1P 131530-95-5P 131530-96-6P 131530-97-7P  
131530-98-8P 131530-99-9P 131531-00-5P 131531-01-6P 131531-02-7P  
131613-97-3P 131613-98-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

IT 62-76-0

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, in synthesis of poly(hydroxy)carboxylates)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=> D HIS

(FILE 'HOME' ENTERED AT 16:19:18 ON 18 MAY 2009)

FILE 'CASREACT' ENTERED AT 16:20:11 ON 18 MAY 2009

L1 STRUCTURE UPLOADED  
L2 16 S L1 SSS SAMPLE

FILE 'CAPLUS' ENTERED AT 16:26:14 ON 18 MAY 2009

FILE 'REGISTRY' ENTERED AT 16:26:30 ON 18 MAY 2009

FILE 'CASREACT' ENTERED AT 16:26:42 ON 18 MAY 2009  
L3 1842 S L1 SSS FULL

FILE 'CAPLUS' ENTERED AT 16:27:50 ON 18 MAY 2009

E SCANDIUM+ALL/CT  
E LANTHANUM+ALL/CT  
E RARE EARTH METALS+ALL/CT  
E ACTINIUM+ALL/CT

L4 11 S L3 AND ((SCANDIUM OR "GROUP IIIB ELEMENTS") OR (LANTHANUM OR

=> D L4 IBIB ABS IND 1-11

L4 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:963576 CAPLUS Full-text

DOCUMENT NUMBER: 147:323148

TITLE: Cyclization process of forming a multiple ring  
compound

INVENTOR(S): Loh, Teck Peng; Zhao, Yu Jun

PATENT ASSIGNEE(S): Nanyang Technological University, Singapore

SOURCE: PCT Int. Appl., 118pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

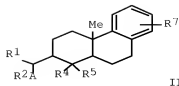
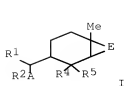
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007097719	A1	20070830	WO 2007-SG55	20070222
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRIORITY APPLN. INFO.: US 2006-775363P P 20060222

OTHER SOURCE(S): CASREACT 147:323148; MARPAT 147:323148

GI



- AB The present invention relates to a cyclization process of forming a multiple ring compound, e.g. I [R1=alkyl, cycloalkyl, aryl, arylalkyl, arylcycloalkyl (optionally containing 0 - 3 heteroatoms selected from N, O, S, Se, Si), especially, Ph, R'; R2 = H, alkyl, cycloalkyl, aryl, arylalkyl, arylcycloalkyl (optionally containing 0 - 3 heteroatoms selected from N, O, S, Se, Si); R4, R5=alkyl, cycloalkyl, arylalkyl, arylcycloalkyl; A, B = O, S, Se; E = aliphatic, cycloaliph. or arylaliph. bridge] or II [R7 = H, alkyl, cycloalkyl, arylalkyl, arylcycloalkyl (optionally containing 0 - 3 heteroatoms selected from N, O, S, Se, Si)], from an isoprenoid compound R4R5C:CHCH2 (CH2CR20:CHCH2)p(CH2CR21:CHCH2)qR6 [R6=terminating moiety, especially, C6H4R7; R20, R21 = alkyl, cycloalkyl, aryl, arylalkyl, arylcycloalkyl, halogen, OH, SH, SeH, CO2H, NH2, imino, CONH2, imido, N3, diazo, CN, isocyno, NO2, NO, sulfo, sulfido, sulfonyl, silyl; p, q = 0 - 3] or R4R5C:CHCH2 (CH2CMe:CHCH2)mR6 [m = 0 - 5]. The cyclization process involves reacting the isoprenoid compound with an acetal initiator, R1CH(AR2) (BR3) [R3=H, alkyl, cycloalkyl, aryl, arylalkyl, arylcycloalkyl (optionally containing 0 - 3 heteroatoms selected from N, O, S, Se, Si); R2R3 = Cl-12-alkyl, -cycloalkyl, -arylalkyl, bridge (optionally containing 0 - 2 heteroatoms); B = O, S, Se], under conditions sufficient to form the multiple ring compound. The isoprenoid compound is contacted with an initiator an optionally with a catalyst. Cyclization occurs by reaction of the initiator with the isoprenoid compound. Cyclic acetal compds. wherein the acetal forms part of 6-membered unsatd. ring are also defined. Thus, abietane derivative (+)-(S,S,S)-II [A = O, R1 = Ph, R2 = (CH2)3OH, R7 = H] was prepared in 76% yield from homogeranylbenezene via cyclization with 2-phenyl-1,3-dioxane in CH2Cl2 containing SnCl4.
- CC 30-20 (Terpenes and Terpenoids)
- Section cross-reference(s): 24, 25, 32, 67, 75
- ST multiple ring compd prepn; abietane diterpene skeleton prepn; isoprenoid cyclization acetal initiator; homogeranylbenezene cyclization phenyldioxane tin tetrachloride catalyst
- IT Steroids, preparation  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (acetals, preparation and cyclization of, with isoprenoids; cyclization process of forming a multiple ring compound)
- IT Isoprenoids  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (arylated, preparation and cyclization of, with acetals; cyclization process of forming a multiple ring compound)
- IT Bronsted acids  
 Lewis acids  
 RL: CAT (Catalyst use); USES (Uses)  
 (cyclization catalysts; cyclization process of forming a multiple ring compound)
- IT Cyclization catalysts  
 (cyclization process of forming a multiple ring compound)
- IT Polycyclic compounds  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (cyclization process of forming a multiple ring compound)
- IT Cyclization



(of acetals with isoprenoids; cyclization process of forming a multiple ring compound)

IT Crystal structure  
(of multiple ring compds.)

IT Diterpenes  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(podocarpene, intermediates; cyclization process of forming a multiple ring compound)

IT Aromatic compounds  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prenylated, preparation and cyclization of, with acetals; cyclization process of forming a multiple ring compound)

IT Thioacetals  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation and cyclization of, with isoprenoids; cyclization process of forming a multiple ring compound)

IT Acetals  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and cyclization of, with isoprenoids; cyclization process of forming a multiple ring compound)

IT Acetals  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(selenoacetals, preparation and cyclization of, with isoprenoids; cyclization process of forming a multiple ring compound)

IT 1057335-41-7 1057335-43-9  
RL: PRPH (Prophetic)  
(Cyclization process of forming a multiple ring compound)

IT 104-53-0, 3-Phenylpropionaldehyde  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(Grignard reaction of, with (1-propen-2-yl)magnesium bromide; cyclization process of forming a multiple ring compound)

IT 13291-18-4, (1-Propen-2-yl)magnesium bromide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(Grignard reaction of, with hydrocinnamaldehyde; cyclization process of forming a multiple ring compound)

IT 2605-68-7, Methyl 2-(triphenylphosphoranylidene)propionate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(Wittig reactions of, with aldehydes and ketones; cyclization process of forming a multiple ring compound)

IT 107951-71-3, (2S,4S)-Bis[(trimethylsilyl)oxy]pentane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(acetalization by, of benzaldehyde and steroid aldehyde; cyclization process of forming a multiple ring compound)

IT 108813-04-3, (2S,3S)-Bis[(trimethylsilyl)oxy]butane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(acetalization by, of benzaldehyde; cyclization process of forming a multiple ring compound)

IT 133445-20-2, (2R,4R)-Bis[(trimethylsilyl)oxy]pentane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(acetalization by, of steroid aldehyde; cyclization process of forming a multiple ring compound)

IT 100-52-7, Benzaldehyde, reactions 3986-89-8, 3-Oxopregn-4-ene-20-carboxaldehyde  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(acetalization of; cyclization process of forming a multiple ring compound)

IT 3355-28-0, 2-Butynyl bromide  
RL: RCT (Reactant); RACT (Reactant or reagent)

(alkylation by, of geranyl tolyl sulfone; cyclization process of forming a multiple ring compound)

IT 130891-01-9, 3-Bromobenzyl phenyl sulfone  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alkylation of, by (silyloxy)geranyl bromide; cyclization process of forming a multiple ring compound)

IT 53254-60-7, Geranyl p-tolyl sulfone  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alkylation of, by 2-butynyl bromide; cyclization process of forming a multiple ring compound)

IT 75-75-2, Methanesulfonic acid 76-05-1, Trifluoroacetic acid, uses 1493-13-6, Triflic acid 2923-28-6, Silver(I) triflate 7439-89-6D, Iron, derivs. 7440-15-5D, Rhenium, derivs. 7440-25-7D, Tantalum, derivs. 7440-31-5, Tin, uses 7440-31-5D, Tin, derivs. 7440-32-6D, Titanium, derivs. 7440-36-0D, Antimony, derivs. 7440-66-6D, Zinc, derivs. 7446-70-0, Aluminum trichloride, uses 7550-45-0, Titanium tetrachloride, uses 7637-07-2, Boron trifluoride, uses 7646-78-8, Tin tetrachloride, uses 7647-01-0, Hydrochloric acid, uses 7727-15-3, Aluminum tribromide 7789-21-1, Fluorosulfonic acid 7789-67-5, Tin tetrabromide 7789-68-6, Titanium tetrabromide 10025-82-8, Indium trichloride 10035-10-6, Hydrobromic acid, uses 10294-33-4, Boron tribromide 10294-34-5, Boron trichloride 13465-09-3, Indium tribromide 14104-20-2, Silver(I) tetrafluoroborate 27153-10-2, Trichloromethanesulfonic acid 34946-82-2, Copper(II) triflate 52093-26-2, Lanthanum triflate 52093-28-4, Samarium triflate 54010-75-2, Zinc triflate 62086-04-8, Tin ditriflate 74974-61-1, Aluminum triflate 82113-65-3, Triflimide 107792-63-2 128008-30-0, Indium triflate 140429-71-6 144026-79-9, Scandium triflate  
 RL: CAT (Catalyst use); USES (Uses)  
 (cyclization catalyst; cyclization process of forming a multiple ring compound)

IT 1117-52-8, (E,E-Farnesyl)acetone 3796-70-1, Geranylacetone 4128-17-0 7733-91-7 22850-55-1 40716-66-3 72039-82-8 140677-79-8 947587-76-0, (E)-7,11-Dimethyl-6,10-dodecadien-2-yne  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (cyclization of, with acetal initiators; cyclization process of forming a multiple ring compound)

IT 331233-82-0 405506-91-4 947588-21-8 947588-26-3 947588-30-9  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (cyclization of, with acetals; cyclization process of forming a multiple ring compound)

IT 947587-56-6P 947588-09-2P 947588-12-7P 947588-13-8P 947588-14-9P 947588-17-2P 947588-18-3P 947588-19-4P 947588-23-0P 947588-24-1P 947588-39-8P 947588-42-3P 947588-43-4P 947588-44-5P 947588-45-6P  
 RL: BYP (Byproduct); PREP (Preparation)  
 (cyclization process of forming a multiple ring compound)

IT 405506-90-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (cyclization process of forming a multiple ring compound)

IT 55902-90-4P 926630-13-9P 926630-14-0P 926630-15-1P 926630-16-2P 926630-17-3P 926630-18-4P 926630-19-5P 926630-21-9P 926630-23-1P 926630-24-2P 926630-25-3P 926630-26-4P 926630-29-7P 947587-58-8P 947587-67-9P 947587-70-4P 947587-71-5P 947587-72-6P 947587-73-7P 947587-74-8P 947587-75-9P 947587-77-1P 947587-78-2P 947587-80-6P 947587-84-0P 947587-92-0P 947587-98-6P, Methyl  
 (±)-3β-hydroxy-8,11,13(14),15-abietatetraenoate 947587-99-7P, Methyl (±)-3β-hydroxy-8,11,13(14)-abietatrienoate 947588-03-6P  
 947588-05-8P 947588-10-5P 947588-11-6P 947588-15-0P 947588-16-1P 947588-20-7P 947588-22-9P 947588-25-2P 947588-27-4P 947588-28-5P 947588-29-6P 947588-31-0P 947588-32-1P 947588-33-2P 947588-34-3P

947588-37-6P 947588-38-7P 947688-14-4P 947688-16-6P 947688-18-8P  
947688-20-2P 947688-21-3P 947688-22-4P 947688-23-5P 947688-24-6P  
947688-26-8P 947688-27-9P

RL: SPN (Synthetic preparation); PREP (Preparation)

(cyclization process of forming a multiple ring compound)

- IT 56-23-5, Carbon tetrachloride, uses 60-29-7, Diethyl ether, uses 62-53-3, Aniline, uses 67-64-1, Acetone, uses 67-66-3, Chloroform, uses 71-43-2, Benzene, uses 75-09-2, Dichloromethane, uses 75-15-0, Carbon disulfide, uses 78-93-3, Methyl ethyl ketone, uses 97-85-8, Isobutyl isobutyrate 106-42-3, p-Xylene, uses 108-10-1, Methyl isobutyl ketone 108-20-3, Diisopropyl ether 108-88-3, Toluene, uses 108-94-1, Cyclohexanone, uses 109-99-9, Tetrahydrofuran, uses 110-54-3, Hexane, uses 110-86-1, Pyridine, uses 111-76-2, Ethylene glycol monobutyl ether 123-91-1, Dioxane, uses 141-78-6, Ethyl acetate, uses 142-82-5, Heptane, uses 1300-21-6, Dichloroethane

RL: NUU (Other use, unclassified); USES (Uses)

(cyclization solvent; cyclization process of forming a multiple ring compound)

- IT 774-48-1, Benzaldehyde diethyl acetal 1125-88-8, Benzaldehyde dimethyl acetal 5663-30-9, 2-(Phenethyl)-1,3-dioxane 17357-15-2, 2-Octyl-1,3-dioxane 38115-81-0, Benzaldehyde diisopropyl acetal 53893-36-0 56318-28-6, Benzaldehyde diallyl acetal 61568-51-2, 2-(4-Bromophenyl)-1,3-dioxane 68237-83-2, 2-(3-Butenyl)-1,3-dioxane 947588-08-1

RL: RCT (Reactant); RACT (Reactant or reagent)

(initiator, cyclization of, with isoprenoids; cyclization process of forming a multiple ring compound)

- IT 69087-52-1P, [4S-(2 $\alpha$ ,4 $\alpha$ ,5 $\beta$ )]-4,5-Dimethyl-2-phenyl-1,3-dioxolane 947587-63-5P 947688-25-7P 947691-08-9P, 3-Oxopregn-4-ene-20-carboxaldehyde propylene acetal

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(initiator, cyclization of, with isoprenoids; cyclization process of forming a multiple ring compound)

- IT 772-01-0P, 2-Phenyl-1,3-dioxane 936-51-6P, 2-Phenyl-1,3-dioxolane 926892-40-2P, (4S,6S)-4,6-Dimethyl-2-phenyl-1,3-dioxane

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(initiator, preparation and cyclization of, with isoprenoids; cyclization process of forming a multiple ring compound)

- IT 1836-38-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and Claisen rearrangement of, with orthoacetate; cyclization process of forming a multiple ring compound)

- IT 76620-37-6P 947588-06-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and Dibal-H reduction of; cyclization process of forming a multiple ring compound)

- IT 238736-71-5P 947587-88-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and Wittig reaction of, with phosphoranylidenepropionate; cyclization process of forming a multiple ring compound)

- IT 881075-33-8P, (E)-8-[(tert-Butyldiphenylsilyloxy)geranyl bromide

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and alkylation by, of bromobenzyl Ph sulfone; cyclization process of forming a multiple ring compound)

IT 947587-93-1P 947588-00-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and basic hydrolysis of; cyclization process of forming a  
 multiple ring compound)

IT 127969-90-8P, (E)-8-[(tert-Butyldiphenylsilyl)oxy]geraniol  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and bromination of; cyclization process of forming a multiple  
 ring compound)

IT 926630-30-0P 947588-04-7P 947588-07-0P 947588-40-1P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and crystal structure of; cyclization process of forming a  
 multiple ring compound)

IT 38011-81-3P 38011-83-5P 57293-25-1P 405506-88-9P 405506-89-0P  
 947587-81-7P 947587-83-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and cyclization of, with acetal initiators; cyclization process  
 of forming a multiple ring compound)

IT 22555-66-4P, Homogeranylbenzene  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and cyclization of, with acetals; cyclization process of  
 forming a multiple ring compound)

IT 947691-09-0P, (E)-8-[(tert-Butyldiphenylsilyl)oxy]geranyl acetate  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and deacetylation of; cyclization process of forming a multiple  
 ring compound)

IT 926630-20-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and hydrogenolysis or oxidation of; cyclization process of forming  
 a multiple ring compound)

IT 947587-79-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and hydrolysis of; cyclization process of forming a multiple  
 ring compound)

IT 926630-28-6P 947587-61-3P 947587-82-8P 947588-35-4P 947588-36-5P  
 947588-41-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and oxidation of; cyclization process of forming a multiple ring  
 compound)

IT 947587-86-2P 947587-95-3P 947588-02-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and ozonolysis of; cyclization process of forming a multiple  
 ring compound)

IT 947588-46-7P 947588-47-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reductive desulfonation of; cyclization process of forming  
 a multiple ring compound)

IT 155486-48-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and regioselective ketalization of; cyclization process of

forming a multiple ring compound)

IT 238736-72-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and silylation of; cyclization process of forming a multiple  
 ring compound)

IT 947587-87-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, allylic oxidation and silylation of; cyclization process of  
 forming a multiple ring compound)

IT 947588-01-4P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, bromination and dehydrobromianation of; cyclization process of  
 forming a multiple ring compound)

IT 947587-85-1P 947587-94-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, bromination and dehydrobromination of; cyclization process of  
 forming a multiple ring compound)

IT 947587-97-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, coupling reactions and stereoselective reduction of; cyclization  
 process of forming a multiple ring compound)

IT 947587-91-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, desilylation oxidation and deketalization of; cyclization process  
 of forming a multiple ring compound)

IT 947587-96-4P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, desilylation, oxidation and esterification of; cyclization  
 process of forming a multiple ring compound)

IT 926630-27-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, elimination reaction and oxidation of; cyclization process of  
 forming a multiple ring compound)

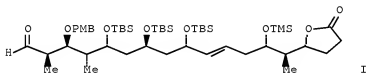
IT 947587-90-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, phosphinylation and Wittig reaction of, with oxooctatrienoate  
 derivative; cyclization process of forming a multiple ring compound)

IT 947587-89-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation, reduction and chlorination of; cyclization process of forming a  
 multiple ring compound)

IT 37905-03-6, (E)-8-Hydroxygeranyl acetate  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (silylation of; cyclization process of forming a multiple ring compound)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TITLE: Enantioselective synthesis of oasomycin A, part II:  
 synthesis of the C29-C46 subunit  
 AUTHOR(S): Evans, David A.; Nagorny, Pavel; Reynolds, Dominic J.;  
 McRae, Kenneth J.  
 CORPORATE SOURCE: Department of Chemistry & Chemical Biology, Harvard  
 University, Cambridge, MA, 02138, USA  
 SOURCE: Angewandte Chemie, International Edition (2007),  
 46(4), 541-544  
 CODEN: ACIEF5; ISSN: 1433-7851  
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 146:380197  
 GI



- AB Asym. synthesis of C29-C46 subunit I of oasomycin A, is reported. First, the C29-C38 subunit was prepared via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde. Then, the C39-C46 subunit was prepared via diastereoselective aldol addition and intramol. heteroconjugate addition from 4,5-di-Ph oxazole. Finally, the C29-C38 and C39-C46 subunits were put together via diastereoselective Kocienski-Julia olefination, followed by singlet oxygen oxidation and lactonization to give the C29-C46 subunit I.
- CC 33-3 (Carbohydrates)
- ST macrolide lactone glycoside oasomycin A synthon fragment asym prepn; copper tin catalysis diastereoselective aldol addn redn; regioselective reductive ring opening scandium catalysis; intramol heteroconjugate addn diastereoselective; diastereoselective Kocienski Julia olefination photochem oxidn lactonization
- IT Aldol addition catalysts  
 (asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)
- IT Asymmetric synthesis and induction  
 Synthons  
 (asym. synthesis of C29-C46 subunit of oasomycin A)
- IT Lactonization  
 Oxidation, photochemical  
 (asym. synthesis of C29-C46 subunit of oasomycin A via diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation and lactonization from C29-C38 and C39-C46 subunit)
- IT Addition reaction  
 (conjugate, stereoselective; asym. synthesis of C39-C46 subunit of oasomycin A via diastereoselective aldol addition and intramol. heteroconjugate addition from di-Ph oxazole)
- IT Macrolides

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (glycosides, synthons for; asym. synthesis of C29-C46 subunit of oasomycin A)

IT Glycosides  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (lactones, macrolides, synthons for; asym. synthesis of C29-C46 subunit of oasomycin A)

IT Ring opening  
 (reductive, regioselective; asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Ring opening catalysts  
 (reductive; asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Reduction catalysts  
 (ring opening; asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Aldol addition  
 Reduction  
 (stereoselective; asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT Olefination  
 (stereoselective; asym. synthesis of C29-C46 subunit of oasomycin A via diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation and lactonization from C29-C38 and C39-C46 subunits)

IT 144026-79-9, Scandium triflate 184591-69-3  
 RL: CAT (Catalyst use); USES (Uses)  
 (asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT 60656-87-3 141423-21-4 146431-18-7 221082-61-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT 147849-64-7P 929882-81-5P 929882-82-6P 929882-83-7P 929882-84-8P  
 929882-85-9P 929882-93-9P 929883-03-4P 929883-04-5P 929883-05-6P  
 929883-06-7P 929883-07-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT 62086-04-8  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (asym. synthesis of C29-C38 subunit of oasomycin A via chiral Cu complex-catalyzed or Sn-mediated diastereoselective aldol addition, reduction, Sc-catalyzed regioselective reductive ring-opening from Chan diene and benzyloxy acetaldehyde)

IT 143436-50-4P, Oasomycin A

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (asym. synthesis of C29-C46 subunit of oasomycin A)

IT 929882-94-0 929882-96-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (asym. synthesis of C29-C46 subunit of oasomycin A via  
 diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation  
 and lactonization from C29-C38 and C39-C46 subunits)

IT 929882-91-7P 929882-92-8P 929883-08-9P 929883-09-0P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (asym. synthesis of C29-C46 subunit of oasomycin A via  
 diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation  
 and lactonization from C29-C38 and C39-C46 subunits)

IT 929875-23-0P 929882-95-1P 929882-97-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (asym. synthesis of C29-C46 subunit of oasomycin A via  
 diastereoselective Kocienski-Julia olefination, singlet oxygen oxidation  
 and lactonization from C29-C38 and C39-C46 subunits)

IT 86-93-1 123-11-5, reactions 1099-45-2 2136-75-6 4675-18-7  
 101711-78-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (asym. synthesis of C39-C46 subunit of oasomycin A via  
 diastereoselective aldol addition and intramol. heteroconjugate addition from  
 di-Ph oxazole)

IT 102368-34-3P 917988-94-4P 917988-95-5P 917988-96-6P 917988-97-7P  
 929882-86-0P 929882-87-1P 929882-88-2P 929882-89-3P 929882-90-6P  
 929882-98-4P 929882-99-5P 929883-00-1P 929883-01-2P 929883-02-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (asym. synthesis of C39-C46 subunit of oasomycin A via  
 diastereoselective aldol addition and intramol. heteroconjugate addition from  
 di-Ph oxazole)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:600168 CAPLUS Full-text

DOCUMENT NUMBER: 145:271697

TITLE: Enantioselective Nitron Cycloadditions of  
 $\alpha,\beta$ -Unsaturated 2-Acyl Imidazoles Catalyzed  
 by Bis(oxazoliny)pyridine-Cerium(IV) Triflate  
 Complexes

AUTHOR(S): Evans, David A.; Song, Hyun-Ji; Fandrick, Keith R.  
 CORPORATE SOURCE: Department of Chemistry and Chemical Biology, Harvard  
 University, Cambridge, MA, 02138, USA  
 SOURCE: Organic Letters (2006), 8(15), 3351-3354  
 CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 145:271697

AB Enantioselective nitron cycloaddn. with  $\beta$ -substituted  $\alpha,\beta$ -unsatd. 2-acyl  
 imidazoles catalyzed by bis(oxazoliny)pyridine-cerium(IV) triflate complexes have  
 been reported. The isoxazolidine products were efficiently transformed into densely  
 functionalized  $\beta'$ -hydroxy- $\beta$ -amino acid derivs.

CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 34

ST enantioselective nitron cycloaddn unsatd acyl imidazole oxazoliny  
 pyridine cerium



- IT Asymmetric synthesis and induction  
Asymmetric synthesis and induction catalysts  
(preparation of (isoxazolyl)(imidazolyl) ketone derivs. via stereoselective nitronc cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs. using bis(oxazoliny)pyridine-cerium triflate complexes as catalysts)
- IT Nitrones  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(stereoselective nitronc cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs. using bis(oxazoliny)pyridine-cerium triflate complexes as catalysts)
- IT Cycloaddition reaction  
Cycloaddition reaction catalysts  
(stereoselective; preparation of (isoxazolyl)(imidazolyl) ketone derivs. via stereoselective nitronc cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs. using bis(oxazoliny)pyridine-cerium triflate complexes as catalysts)
- IT Amino acids, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation)  
( $\beta$ -, chiral derivs.; preparation of densely functionalized  $\beta'$ -hydroxy- $\beta$ -amino acid derivs. using chiral (imidazolyl)(oxazolidiny) ketone as intermediate and stereoselective cerium-catalyzed nitronc cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole)
- IT 906793-28-0P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation of densely functionalized  $\beta'$ -hydroxy- $\beta$ -amino acid derivative and study of its crystal and mol. structures)
- IT 2627-86-3, (S)-(-)- $\alpha$ -Methylbenzylamine  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of densely functionalized  $\beta'$ -hydroxy- $\beta$ -amino acid derivs. using chiral (imidazolyl)(oxazolidiny) ketone as intermediate and stereoselective cerium-catalyzed nitronc cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole as key synthetic step)
- IT 906793-20-2P 906793-21-3P 906793-22-4P 906793-26-8P 906793-27-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of densely functionalized  $\beta'$ -hydroxy- $\beta$ -amino acid derivs. using chiral (imidazolyl)(oxazolidiny) ketone as intermediate and stereoselective cerium-catalyzed nitronc cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole as key synthetic step)
- IT 906793-23-5P 906793-24-6P 906793-25-7P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of densely functionalized  $\beta'$ -hydroxy- $\beta$ -amino acid derivs. using chiral (imidazolyl)(oxazolidiny) ketone as intermediate and stereoselective cerium-catalyzed nitronc cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole as key synthetic step)
- IT 66-77-3, 1-Formylnaphthalene 66-99-9, 2-Formylnaphthalene 100-52-7, Benzaldehyde, reactions 103-49-1 104-88-1, 4-Chlorobenzaldehyde, reactions 123-11-5, 4-Methoxybenzaldehyde, reactions 123-38-6, Propionaldehyde, reactions 622-30-0, Benzylhydroxylamine 1571-08-0 2043-61-0, Cyclohexanecarboxaldehyde 4229-44-1, N-Methylhydroxylamine hydrochloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of nitronc derivs.)
- IT 100-65-2P, N-Phenylhydroxylamine  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of nitron derivs.)

IT 75-07-0, Acetaldehyde, reactions 78-84-2, 2-Methylpropanal 98-01-1, 2-Formylfuran, reactions 107-59-5 107-93-7, E-2-Butenoic acid 140-10-3, reactions 616-47-7 625-35-4, E-2-Butenyl chloride 924-44-7, Ethyl oxoacetate 2960-66-9 13991-37-2 16666-43-6  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs.)

IT 121712-52-5P 860772-73-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs.)

IT 860772-74-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs.)

IT 107792-63-2, Cerium(IV) triflate 128249-70-7, 2,6-Bis[(4R)-4,5-dihydro-4-phenyl-2-oxazolyl]pyridine 131864-67-0 185346-17-2 365215-38-9 372200-56-1, 2,6-Bis[(4R,5R)-4,5-dihydro-4,5-diphenyl-2-oxazolyl]pyridine 497172-36-8  
 RL: CAT (Catalyst use); USES (Uses)

(stereoselective nitron cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs. using bis(oxazolyl)pyridine-cerium triflate complexes as catalysts)

IT 98-95-3, Nitrobenzene, reactions 2893-33-6, 2,6-Pyridinedicarbonitrile 23364-44-5 860772-41-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(stereoselective nitron cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs. using bis(oxazolyl)pyridine-cerium triflate complexes as catalysts)

IT 7372-59-0P, (Z)-N-Methylbenzaldehyde nitron 26505-49-7P, (Z)-C,N-Diphenylnitron 77681-22-2P, (Z)-N-Benzylidenbenzylamine N-oxide 105623-16-3P 115175-98-9P 210367-17-2P 210367-18-3P 309918-56-7P 309918-57-8P 860772-38-9P 860772-39-0P 860772-40-3P 860772-42-5P 860772-43-6P 906792-82-3P 906792-93-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(stereoselective nitron cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs. using bis(oxazolyl)pyridine-cerium triflate complexes as catalysts)

IT 906792-96-9P 906792-99-2P 906793-02-0P 906793-05-3P 906793-08-6P 906793-10-0P 906793-12-2P 906793-13-3P 906793-14-4P 906793-15-5P 906793-16-6P 906793-17-7P 906793-18-8P 906793-19-9P 906793-29-1P 906793-30-4P 906793-31-5P 906793-33-7P 906793-35-9P 906793-37-1P  
 RL: SPN (Synthetic preparation); PREP (Preparation)

(stereoselective nitron cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs. using bis(oxazolyl)pyridine-cerium triflate complexes as catalysts)

IT 34622-08-7, Neodymium triflate 52093-25-1, Europium triflate 52093-26-2, Lanthanum triflate 52093-27-3, Praseodymium(III) trifluoromethanesulfonate 52093-28-4, Samarium triflate 52093-29-5, Gadolinium triflate 54761-04-5, Ytterbium triflate 76089-77-5, Cerium(III) triflate 126857-69-0, Lutetium triflate 139177-62-1, Dysprosium triflate 139177-63-2, Holmium triflate 139177-64-3, Erbium triflate 141478-68-4, Thulium triflate 148980-31-8, Terbium triflate  
 RL: CAT (Catalyst use); USES (Uses)

(stereoselective nitron cycloaddn. of  $\alpha,\beta$ -unsatd. (acyl)imidazole derivs. using bis(oxazolyl)pyridine-lanthanide triflate complex as catalyst)

ACCESSION NUMBER: 2006:410583 CAPLUS Full-text

DOCUMENT NUMBER: 146:122328

TITLE: Preparation of pentaerythritol triacrylate using SO42/TiO2/La3+ as catalyst

AUTHOR(S): Zhou, Haifeng; Zhu, Guangming

CORPORATE SOURCE: Applied Chemistry Department, Northwestern Polytechnical University, Xi'an, 710072, Peop. Rep. China

SOURCE: Riyong Huaxue Gongye (2005), 35(1), 19-22

CODEN: RHGOE8; ISSN: 1001-1803

PUBLISHER: Qinggongyebu Kexue Jishu Qingbao Yanjiuso

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

OTHER SOURCE(S): CASREACT 146:122328

AB Pentaerythritol triacrylate (PETA) was synthesized by esterification of pentaerythritol with acrylic acid (at a ratio of 1:3.5) in toluene in the presence of a solid superacid SO42/TiO2/La3+ and polymerization retarder at 120° for 3 h in a yield of 78.5%. The solid superacid was pre-treated by activation at 500° for 3h. The effects of the reaction condition on the yield and the catalyst preparation condition on the catalyst activity were studied with optimal process conditions obtained. The features of the catalyst surface constitution and the catalysis mechanism were also briefly discussed.

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 37, 46

ST pentaerythritol triacrylate esterification solid superacid titania sulfated lanthanum catalyst; surfactant pentaerythritol triacrylate prepn

IT Esterification

Esterification catalysts

Surfactants

(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)

IT Superacids

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)

IT 7439-91-ODP, Lanthanum, sulfated titania-supported

13463-67-7DP, Titania, sulfated, lanthanum-modified

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)

IT 79-10-7, Acrylic acid, reactions 115-77-5, Pentaerythritol, reactions

1312-81-8, Lanthana 7664-93-9, Sulfuric acid, reactions 13463-67-7, Titania, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)

IT 123-31-9, Hydroquinone, reactions

RL: RGT (Reagent); RACT (Reactant or reagent)

(preparation of pentaerythritol triacrylate by esterification of pentaerythritol with acrylic acid using lanthanum-modified sulfated titania (superacid) as catalyst)

IT 3524-68-3P, Pentaerythritol triacrylate  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of pentaerythritol triacrylate by esterification of  
 pentaerythritol with acrylic acid using lanthanum-modified  
 sulfated titania (superacid) as catalyst)

L4 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:811721 CAPLUS Full-text

DOCUMENT NUMBER: 143:213351

TITLE: Manufacture of 3-alk(aryl)oxy-1-propanols for  
 preparation of 1,3-propanediol

INVENTOR(S): Kibino, Nobuyuki; Kadowaki, Yasushi; Sakai, Masaaki;  
 Hetsugi, Yukiharu

PATENT ASSIGNEE(S): Showa Denko K. K., Japan

SOURCE: PCT Int. Appl., 75 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005075392	A2	20050818	WO 2005-JP2089	20050204
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2005247837	A	20050915	JP 2005-28614	20050204
JP 2005247840	A	20050915	JP 2005-29086	20050204
EP 1713754	A2	20061025	EP 2005-710141	20050204
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS				
CN 1918098	A	20070221	CN 2005-80004227	20050204
US 20070161828	A1	20070712	US 2006-588085	20060731
PRIORITY APPLN. INFO.:				
			JP 2004-28732	A 20040205
			JP 2004-28733	A 20040205
			US 2004-543294P	P 20040211
			US 2004-543405P	P 20040211
			WO 2005-JP2089	W 20050204

OTHER SOURCE(S): CASREACT 143:213351; MARPAT 143:213351

AB In the presence of a catalyst contg. at least one element selected from the group  
 consisting of elements of the Group III, lanthanoid elements and actinide elements  
 of the Periodic Table, an allyl alc. is reacted with an alc. compound A method  
 for efficiently producing 3-alk(aryl)oxy-1-propanol in a single step using an alc.  
 as a starting material is provided, and the 3-alk(aryl)oxy-1-propanol is useful  
 for manufacture of 1,3-propanediol by acidic hydrolysis at ≤200°.

IC ICM C07C029-00

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23, 35, 67

ST alkoxypropanol manuf metalloidal catalyst; aryloxypropanol manuf metalloidal  
 catalyst; propanediol manuf alkoxypropanol acidic hydrolysis; lanthanoid  
 catalyst allyl alc alkanol reaction; actinide catalyst allyl alc alkanol

reaction

IT Metal alkoxides  
 RL: CAT (Catalyst use); USES (Uses)  
 (Group IIIA, addition reaction catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Hydrolysis catalysts  
 (acid; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Ion exchangers  
 (acidic, sulfonic, ether hydrolysis catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Metal alkoxides  
 RL: CAT (Catalyst use); USES (Uses)  
 (actinide; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Actinide oxides  
 Group IIIA element oxides  
 Rare earth oxides  
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
 (addition reaction catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Group IIIA element compounds  
 RL: CAT (Catalyst use); USES (Uses)  
 (alkoxides, addition reaction catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Actinide compounds  
 RL: CAT (Catalyst use); USES (Uses)  
 (alkoxides; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Sulfonic acids, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (ether hydrolysis catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Alcohols, preparation  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (ether; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Acids, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (inorg., ether hydrolysis catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Metal alkoxides  
 RL: CAT (Catalyst use); USES (Uses)  
 (lanthanoid, addition reaction catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Addition reaction  
 Hydrolysis  
 (manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

IT Alcohols, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)

- (manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT Addition reaction catalysts  
(metal oxides; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT 2172-12-5, Yttrium triisopropoxide 6742-69-4, Ytterbium triisopropoxide 16161-25-4, Ytterbium triethoxide 17423-02-8, Ytterbium methoxide 60406-93-1, Scandium triisopropoxide 90397-40-3, Yttrium methoxide 90397-41-4, Scandium methoxide 90397-66-3, Yttrium triethoxide 90397-67-4, Scandium ethoxide
- RL: CAT (Catalyst use); USES (Uses)  
(addition reaction catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT 1308-87-8P, Dysprosium trioxide 1312-81-8P, Lanthanum trioxide 1314-36-9P, Yttrium trioxide, preparation 1314-37-0P, Ytterbium trioxide 12037-29-5P, Praseodymium oxide (Pr6O11) 12055-62-8P, Holmium trioxide 12060-08-1P, Scandium trioxide 12060-58-1P, Samarium oxide 12061-16-4P, Erbium trioxide 12064-62-9P, Gadolinium trioxide
- RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
(addition reaction catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT 75-75-2, Methanesulfonic acid 104-15-4, p-Toluenesulfonic acid, uses 7664-93-9, Sulfuric acid, uses 27176-87-0, Dodecylbenzenesulfonic acid
- RL: CAT (Catalyst use); USES (Uses)  
(ether hydrolysis catalyst; manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT 6180-67-2P, 3-Allyloxy-1-propanol
- RL: BYP (Byproduct); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT 1313-97-9, Neodymium oxide 12032-20-1, Lutetium oxide
- RL: CAT (Catalyst use); USES (Uses)  
(manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT 504-63-2P, 1,3-Propanediol
- RL: IMF (Industrial manufacture); PREP (Preparation)  
(manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT 111-35-3P, 3-Ethoxy-1-propanol 1589-49-7P, 3-Methoxy-1-propanol 4161-22-2P, 3-Propoxy-1-propanol
- RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)
- IT 64-17-5, Ethanol, reactions 67-56-1, Methanol, reactions 67-63-0, Isopropanol, reactions 71-23-8, Propanol, reactions 71-36-3, 1-Butanol, reactions 75-65-0, tert-Butanol, reactions 78-83-1, Isobutanol, reactions 100-51-6, Benzyl alcohol, reactions 107-18-6, Allyl alcohol, reactions 108-95-2, Phenol, reactions 4799-68-2, 3-Benzyloxy-1-propanol
- RL: RCT (Reactant); RACT (Reactant or reagent)  
(manufacture of alk(aryl)oxypropanols by 1-step reaction of allyl alc. with alkanols or phenol for preparation of propanediol)

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:533553 CAPLUS Full-text

DOCUMENT NUMBER: 143:211799

TITLE: Asymmetric Baylis-Hillman reactions using  
(R)-4-(3-hydroxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid acrylate derivatives in solution and on solid support

AUTHOR(S): Calmes, Monique; Akkari, Rhalid; Barthes, Nicolas;  
Escale, Francoise; Martinez, Jean

CORPORATE SOURCE: Laboratoire des Aminoacides Peptides et Proteines, UMR  
CNRS 5810 Universites Montpellier I et II,  
Montpellier, 34095, Fr.

SOURCE: Tetrahedron: Asymmetry (2005), 16(12), 2179-2185  
CODEN: TASYE3; ISSN: 0957-4166

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 143:211799

AB The influence of several variables on the course of the Baylis-Hillman reaction between the (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid Me ester and polymer-supported amide and aromatic aldehydes has been investigated both in solution and on solid support: these resulted in comparable results with the formation of adducts in high yield and moderate selectivity.

CC 27-10 (Heterocyclic Compounds (One Hetero Atom))

ST Baylis Hillman asym acryloyloxyoxopyrrolidinylbenzoic acid soln solid phase

IT Addition reaction  
(Baylis-Hillman, stereoselective; asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid derivs. in solution and on solid support)

IT Asymmetric synthesis and induction  
Solid phase synthesis  
(asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid derivs. in solution and on solid support)

IT Addition reaction  
(stereoselective; asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid derivs. in solution and on solid support)

IT 280-57-9, DABCO 52093-26-2, Lanthanum(III) triflate

RL: CAT (Catalyst use); USES (Uses)  
(asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid derivs. in solution and on solid support)

IT 67-69-5, DMSO, uses

RL: NUU (Other use, unclassified); USES (Uses)  
(asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid derivs. in solution and on solid support)

IT 105-07-7, 4-Cyanobenzaldehyde 455-19-6, 4-Trifluoromethylbenzaldehyde 555-16-8, 4-Nitrobenzaldehyde, reactions 777087-97-5D, polymer-supported 777088-07-0

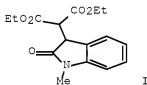
RL: RCT (Reactant); RACT (Reactant or reagent)  
(asym. Baylis-Hillman reactions using (R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid derivs. in solution and on solid support)

IT 862416-18-0P 862416-27-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(asym. Baylis-Hillman reactions using  
(R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid  
derivs. in solution and on solid support)  
IT 500166-76-7P 862416-20-4P 862416-21-5P 862416-22-6P 862416-23-7P  
862416-24-8P 862416-25-9P 862416-26-0P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(asym. Baylis-Hillman reactions using  
(R)-4-(3-acryloyloxy-4,4-dimethyl-2-oxopyrrolidin-1-yl)benzoic acid  
derivs. in solution and on solid support)  
REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2004:885132 CAPLUS Full-text  
DOCUMENT NUMBER: 142:56120  
TITLE: A Lewis acid-promoted cyclization of  
ethenetetracarboxylate derivative aromatic compounds.  
Novel syntheses of oxindoles and benzofuranones via  
Friedel-Crafts intramolecular Michael addition  
AUTHOR(S): Yamazaki, Shoko; Morikawa, Satoshi; Iwata, Yuko;  
Yamamoto, Machiko; Kuramoto, Kaori  
CORPORATE SOURCE: Department of Chemistry, Nara University of Education,  
Nara, Takabatake-cho, 630-8528, Japan  
SOURCE: Organic & Biomolecular Chemistry (2004), 2(21),  
3134-3138  
CODEN: OBCRAK; ISSN: 1477-0520  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 142:56120  
GI



AB A cyclization reaction of ethenetetracarboxylate deriv. arom. compds., in the presence  
of various Lewis acids, gave benzo-annulated cyclic compds. such as oxindoles, e.g.,  
I, and benzofuranones by Friedel-Crafts intramol. Michael addition in high yields.  
The reaction of di-Et 2-[(N-methyl-N-phenylcarbamoyl)methylene]malonate in the  
presence of ZnCl<sub>2</sub> gave I in excellent yield. The reactions also proceeded with  
a catalytic amount of a Lewis acid such as AlCl<sub>3</sub>, ZnCl<sub>2</sub>, ZnBr<sub>2</sub>, Sc(OTf)<sub>3</sub>, or InBr<sub>3</sub>.  
CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
ST ethenetetracarboxylate aniline amidation; carbamoylmethylenemalonate prepn  
Friedel Crafts intramol Michael addn Lewis acid; indolinone prepn;  
benzofuranone prepn; Lewis acid Friedel Crafts intramol Michael addn  
promoter  
IT Amines, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(aromatic; preparation of N-aryl di(ethoxycarbonyl)propenamides via amidation  
of t-Bu di-Et ethenetetracarboxylate with anilines in the preparation of  
indoles)



- IT Friedel-Crafts reaction  
(intramol., Michael addition; preparation of indolinones via Lewis acid-promoted Friedel-Crafts intramol. Michael addition of N-aryl di(alkoxycarbonyl)propenamides)
- IT Phenols, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of benzofuranones via transesterification of t-Bu di-Et ethenetricarboxylate with phenols followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)
- IT Lewis acids  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(preparation of indolinones via Lewis acid-promoted Friedel-Crafts intramol. Michael addition of N-aryl di(alkoxycarbonyl)propenamides)
- IT Amides, preparation  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
( $\alpha,\beta$ -unsatd., aryl; preparation of indolinones via Lewis acid-promoted Friedel-Crafts intramol. Michael addition of N-aryl di(alkoxycarbonyl)propenamides)
- IT Esters, preparation  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
( $\alpha,\beta$ -unsatd.; preparation of benzofuranones via transesterification of t-Bu di-Et ethenetricarboxylate with phenols followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)
- IT 811418-93-6P 811418-94-7P  
RL: BYP (Byproduct); PREP (Preparation)  
(byproducts from the preparation of indoles via Lewis-acid-promoted Friedel-Crafts intramol. Michael addition of N-aryl di(alkoxycarbonyl)propenamides)
- IT 100-61-8, N-Methylaniline, reactions 103-69-5, N-Ethylaniline 611-21-2, N-Methyl-2-methylaniline 622-80-0, N-Propylaniline 623-08-5, N-Methyl-4-methylaniline 696-44-6 932-96-7, N-Methyl-4-chloroaniline 188973-69-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of N-aryl di(ethoxycarbonyl)propenamides via amidation of t-Bu di-Et ethenetricarboxylate with anilines in the preparation of indoles)
- IT 431911-73-8P 811418-53-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of N-aryl di(ethoxycarbonyl)propenamides via amidation of t-Bu di-Et ethenetricarboxylate with anilines in the preparation of indoles)
- IT 811418-89-0P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of N-benzyl-N-Me di(ethoxycarbonyl)hydroxypropanamide via amidation of t-Bu di-Et ethenetricarboxylate followed by hydrolysis)
- IT 35000-38-5, tert-Butyl triphenylphosphoranylideneacetate 92778-46-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of N-methyl-N-phenyl(di(benzoyloxycarbonyl))propenamide via olefination of dibenzyl ketomalonate with t-Bu triphenylphosphoranylideneacetate in the preparation of indoles)
- IT 103-67-3, N-Methylbenzylamine  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of N-methyl[di(ethoxycarbonyl)methyl]isoquinolinone via amidation of t-Bu di-Et ethenetricarboxylate with N-methylbenzylamine followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)
- IT 811418-86-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of N-methyl[di(ethoxycarbonyl)methyl]isoquinolinone via

amidation of t-Bu di-Et ethenetricarboxylate with N-methylbenzylamine followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 811418-87-8P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of N-methyl[di(ethoxycarbonyl)methyl]isoquinolinone via amidation of t-Bu di-Et ethenetricarboxylate with N-methylbenzylamine followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 705-76-0, 3,5-Dimethoxybenzyl alcohol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of [di(ethoxycarbonyl)methyl]dimethoxytetrahydrobenzopyranone via transesterification of t-Bu di-Et ethenetricarboxylate with dimethoxybenzyl alc. followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 811418-91-4P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of [di(ethoxycarbonyl)methyl]dimethoxytetrahydrobenzopyranone via transesterification of t-Bu di-Et ethenetricarboxylate with dimethoxybenzyl alc. followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 811418-92-5P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of [di(ethoxycarbonyl)methyl]dimethoxytetrahydrobenzopyranone via transesterification of t-Bu di-Et ethenetricarboxylate with dimethoxybenzyl alc. followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 108-39-4, 3-Methylphenol, reactions 108-95-2, Phenol, reactions 150-19-6, 3-Methoxyphenol 150-76-5, 4-Methoxyphenol 500-99-2, 3,5-Dimethoxyphenol 2033-89-8, 3,4-Dimethoxyphenol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of benzofuranones via transesterification of t-Bu di-Et ethenetricarboxylate with phenols followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 811418-71-0P 811418-73-2P 811418-74-3P 811418-75-4P 811418-76-5P 811418-77-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of benzofuranones via transesterification of t-Bu di-Et ethenetricarboxylate with phenols followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 811418-72-1P 811418-78-7P 811418-79-8P 811418-80-1P 811418-81-2P 811418-82-3P 811418-83-4P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of benzofuranones via transesterification of t-Bu di-Et ethenetricarboxylate with phenols followed by Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 100-51-6, Benzyl alcohol, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of benzyl di(ethoxycarbonyl)propenoate via transesterification of t-Bu di-Et ethenetricarboxylate with benzyl alc.)

IT 811418-90-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of benzyl di(ethoxycarbonyl)propenoate via transesterification of t-Bu di-Et ethenetricarboxylate with benzyl alc.)

IT 122-97-4, 3-Phenylpropanol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of di-Et phenylpropylidenemalonate via oxidation of phenylpropanol followed by condensation with di-Et ketomalonate)

IT 104-53-0P, 3-Phenylpropanal  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)  
 (preparation of di-Et phenylpropylidenemalonate via oxidation of phenylpropanol followed by condensation with di-Et ketomalonate)

IT 103766-22-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of di-Et phenylpropylidenemalonate via oxidation of phenylpropanol followed by condensation with di-Et ketomalonate)

IT 105-53-3, Diethyl malonate 3929-47-3, 3-(3,4-Dimethoxyphenyl)propanol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of dimethoxy[di(ethoxycarbonyl)methyl]indane via oxidation of dimethoxyphenylpropanol followed by condensation with di-Et malonate and Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 811418-84-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of dimethoxy[di(ethoxycarbonyl)methyl]indane via oxidation of dimethoxyphenylpropanol followed by condensation with di-Et malonate and Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 811418-85-6P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of dimethoxy[di(ethoxycarbonyl)methyl]indane via oxidation of dimethoxyphenylpropanol followed by condensation with di-Et malonate and Lewis acid-promoted Friedel-Crafts intramol. Michael addition)

IT 811418-54-9P 811418-55-0P 811418-57-2P 811418-58-3P 811418-59-4P  
 811418-60-7P 811418-61-8P 811418-62-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of indolinones via Lewis acid-promoted Friedel-Crafts intramol. Michael addition of N-aryl di(alkoxycarbonyl)propenamides)

IT 7446-70-0, Aluminum trichloride, reactions 7646-78-8, Tin tetrachloride, reactions 7646-85-7, Zinc dichloride, reactions 7699-45-8, Zinc dibromide 13450-90-3, Gallium trichloride 13465-09-3, Indium tribromide 54010-75-2, Zinc triflate 144026-79-9, Scandium triflate  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (preparation of indolinones via Lewis acid-promoted Friedel-Crafts intramol. Michael addition of N-aryl di(alkoxycarbonyl)propenamides)

IT 811418-56-1P 811418-63-0P 811418-64-1P 811418-65-2P 811418-66-3P  
 811418-67-4P 811418-68-5P 811418-69-6P 811418-70-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of indolinones via Lewis acid-promoted Friedel-Crafts intramol. Michael addition of N-aryl di(alkoxycarbonyl)propenamides)

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:406283 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 139:230664

TITLE: Synthesis and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers

AUTHOR(S): Helmboldt, Hannes; Hiersemann, Martin  
 CORPORATE SOURCE: Institut fuer Organische Chemie, Technische Universitaet Dresden, Dresden, D-01069, Germany

SOURCE: Tetrahedron (2003), 59(23), 4031-4038  
 CODEN: TETRAB; ISSN: 0040-4020

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:230664

AB Allyl vinyl ethers contg. an acceptor function in the 2-position are useful substrates for the Lewis acid-catalyzed Claisen rearrangement. The first synthesis of acyclic 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers is reported. The Lewis acid catalyzed Claisen rearrangement of these allyl vinyl ethers afforded the rearrangement products with low to moderate diastereo- and enantioselectivity. The catalyzed rearrangement of chiral allyl vinyl ethers was investigated. The combination of substrate- and catalyst-induced diastereoselectivity led to unexpected and unprecedented results.

CC 28-6 (Heterocyclic Compounds (More Than One Hetero Atom))

ST Lewis acid catalyst stereoselective Claisen rearrangement oxazolinyl ether; allyl vinyl ether oxazolinyl stereoselective Claisen rearrangement

IT Ethers, preparation  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (allyl; preparation and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

IT Lewis acids  
 RL: CAT (Catalyst use); USES (Uses)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

IT Claisen rearrangement  
 Claisen rearrangement catalysts  
 (stereoselective; preparation and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

IT Ethers, preparation  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (vinyl; preparation and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

IT 34946-82-2, Cupric triflate 62086-04-8, Tin ditriflate 126857-69-0, Lutetium triflate 144026-79-9, Scandium triflate 172323-63-6 172323-64-7 208242-67-5  
 RL: CAT (Catalyst use); USES (Uses)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

IT 107-18-6, 2-Propen-1-ol, reactions 124-68-5 556-82-1 928-94-9 928-95-0 2026-48-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

IT 25130-82-9P 107531-92-0P 256394-12-4P 301659-20-1P 301659-67-6P 595585-19-6P 595585-20-9P 595585-21-0P 595585-22-1P 595585-23-2P 595585-24-3P 595585-25-4P 595585-26-5P 595585-27-6P 595585-28-7P 595585-29-8P 595585-30-1P 595585-31-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

IT 595585-32-3P 595585-33-4P 595585-34-5P 595585-35-6P 595585-36-7P 595585-37-8P 595585-38-9P 595585-39-0P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and Lewis acid catalyzed Claisen rearrangement of 2-(1,3-oxazolin-2-yl)-substituted allyl vinyl ethers)

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1993:516561 CAPLUS Full-text  
 DOCUMENT NUMBER: 119:116561  
 ORIGINAL REFERENCE NO.: 119:20951a,20954a

TITLE: The addition of hydroxyl compounds to unsaturated carboxylic acids homogeneously catalyzed by lanthanide(III)

AUTHOR(S): Huskens, Jurriaan; Peters, Joop A.; Van Bekkum, Herman

CORPORATE SOURCE: Lab. Org. Chem. Catal., Delft Univ. Technol., Delft, 2628 BL, Neth.

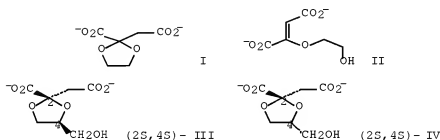
SOURCE: Tetrahedron (1993), 49(15), 3149-64

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 119:116561

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- AB La(III) is a good catalyst for the addn. of hydroxyl compds. to unsatd. carboxylic acids, yielding ether polycarboxylates. The La(III) can be applied as the chloride, the alkoxide, or the oxide. In the latter case in situ conversion to the La(III) salt of the unsatd. carboxylic acid is required. Lanthanum alkoxides, which combine the activation of the reactants by La(III) with a high basicity of the solution, give the highest addition reaction rates. The addition of ethylene glycol to acetylenedicarboxylate (Ia) yields the dioxolane I upon removal of La(III). 13C and 17O NMR prove that the production of this ketalized oxaloacetate proceeds via 2 intermediates, namely the monoadduct II and the diadduct C(CO<sub>2</sub><sup>-</sup>)(OCH<sub>2</sub>CH<sub>2</sub>OH)C(CO<sub>2</sub><sup>-</sup>), of which the latter only exists as a La(III)-complex. The addition of glycerol to Ia yields a mixture of two dioxolanes (±)-III and (±)-IV in a molar ratio of about 2:5, which indicates that the cyclization is thermodyn. controlled.
- CC 22-3 (Physical Organic Chemistry)
- ST lanthanide catalyst unsatd carboxylic acid addn; kinetics addn alc unsatd carboxylic acid; mechanism addn diol unsatd carboxylic acid; glycol addn mechanism unsatd carboxylic acid
- IT Alcohols, reactions
- Glycols, reactions
- RL: RCT (Reactant); RACT (Reactant or reagent)
- (addition of, to unsatd carboxylic acids, kinetics and mechanism of lanthanide(III) catalyzed)
- IT Addition reaction catalysts
- (lanthanide(III) compds., for hydroxylic compds. to unsatd. carboxylic acids, kinetics and mechanism with)
- IT Nuclear magnetic resonance
- (of ethylene glycol, effect of lanthanide(III) on, carbon-13 and oxygen-17)
- IT Stereochemistry
- (of hydrochlorinations or addns. of glycols to unsatd. carboxylic acids)
- IT Kinetics of addition reaction
- (of hydroxylic compds. to unsatd. carboxylic acids mediated by

- lanthanide(III) compds.)
- IT Addition reaction  
(of hydroxylic compds. to unsatd. carboxylic acids mediated by  
lanthanide(III) compds., mechanism of)
- IT Hydrochlorination  
(of unsatd. carboxylic acids in ethylene glycol containing  
lanthanum trichloride, mechanism and stereochem. of)
- IT Ethers, preparation  
RL: PREP (Preparation)  
(polycarboxylate, from addition of hydroxylic compds. to to unsatd.  
carboxylic acids, lanthanide(III) catalysts for)
- IT Rare earth metals, compounds  
RL: PRP (Properties)  
(salts, as addition catalysts, for alcs. to unsatd carboxylic acid,  
kinetics and mechanism with)
- IT Carboxylic acids, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(unsatd., addition of hydroxyl compds. to, kinetics and mechanism of  
lanthanide(III) catalyzed)
- IT 79-10-7, 2-Propenoic acid, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition of ethylene glycol to, kinetics and mechanism of  
lanthanum oxide mediated)
- IT 107-21-1, 1,2-Ethanediol, reactions 109-86-4, Ethylene glycol monomethyl  
ether  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition of, to unsatd. carboxylic acids, kinetics and mechanism of  
lanthanide(III) catalyzed)
- IT 56-81-5, 1,2,3-Propanetriol, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition of, to unsatd. carboxylic acids, mechanism of lanthanide(III)  
catalyzed)
- IT 471-25-0, Propiolic acid 7446-81-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition reaction of, with alcs. kinetics and mechanism of  
lanthanide(III) catalyzed)
- IT 15122-44-8 149577-09-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition reaction of, with ethylene glycol, lanthanide(III) catalyst for)
- IT 1312-81-8, Dilanthanum trioxide  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst, for addition of alcs. to unsatd. carboxylic acids, kinetics and  
mechanism with)
- IT 23248-21-7, Potassium 2-hydroxyethoxide  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst, for addition of ethylene glycol to sodium acrylate)
- IT 10025-74-8, Dysprosium trichloride  
RL: PRP (Properties)  
(complexation of, with ethylene glycol, carbon-13 and oxygen-17 NMR and)
- IT 10099-58-8, Lanthanum trichloride  
RL: PRP (Properties)  
(dehydration of hydrate and use as catalyst, for addition of alcs. to  
unsatd. carboxylic acids, kinetics and mechanism with)
- IT 149-73-5, Trimethyl orthoformate  
RL: PRP (Properties)  
(dehydration of lanthanide(III) hydrates in ethylene glycol or glycerin  
solns. by)
- IT 142-45-0, Acetylenedicarboxylic acid  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(hydrochlorination of, in ethylene glycol containing lanthanum

trichloride, mechanism and stereochem. of)

IT 7647-01-0  
 RL: PRP (Properties)  
 (hydrochlorination, of unsatd. carboxylic acids in ethylene glycol containing lanthanum trichloride, mechanism and stereochem. of)

IT 14762-74-4  
 RL: PRP (Properties)  
 (nuclear magnetic resonance, of ethylene glycol, effect of lanthanide(III) on, carbon-13 and oxygen-17)

IT 149577-20-8P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and purification of, from lithium chloride)

IT 149274-35-1  
 RL: PRP (Properties)  
 (preparation as catalyst, for addition of alcs. to unsatd. carboxylic acids, kinetics and mechanism with)

IT 328-42-7P, Oxalacetic acid 617-42-5P 1609-93-4P 2345-61-1P  
 5735-92-2P, 2-Carboxymethyl-1,3-dioxolane 5735-95-5P 89211-34-7P,  
 3-(2-Hydroxyethoxy)propionic acid 149577-04-8P, Potassium  
 3-(2-hydroxyethoxy)propionate 149577-05-9P,  
 3-(2-Methoxyethoxy)propionic acid 149577-06-0P, Sodium  
 3-(2-methoxyethoxy)propionate 149577-07-1P 149577-08-2P  
 149577-10-6P 149577-11-7P 149577-12-8P 149577-13-9P 149577-14-0P  
 149577-15-1P 149577-16-2P 149577-17-3P 149577-18-4P 149577-19-5P  
 149577-21-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

L4 ANSWER 10 OF 11 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1991:536549 CAPLUS Full-text  
 DOCUMENT NUMBER: 115:136549  
 ORIGINAL REFERENCE NO.: 115:23435a,23438a  
 TITLE: Synthesis of poly(hydroxy)carboxylates. Part II.  
 Addition of polyols to maleate homogeneously catalyzed  
 by multivalent metal ions

AUTHOR(S): Van Westrenen, Jeroen; Roggen, Robin M.; Hoefnagel,  
 Mattheus A.; Peters, Joop A.; Kieboom, Antonius P. G.;  
 Van Bekkum, Herman

CORPORATE SOURCE: Lab. Org. Chem., Delft Univ. Technol., Delft, 2628 BL,  
 Neth.

SOURCE: Tetrahedron (1990), 46(16), 5741-58  
 CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 115:136549

AB A Michael-type addn. reaction of polyhydroxylated compds. to maleate, homogeneously catalyzed by multivalent metal ions, is described. The reactions are performed in the polyol as solvent, if necessary, with water as co-solvent. The effect of the choice and amount of the metal ion on the rate and the selectivity of the O-alkylation of polyols with maleate is discussed.

CC 33-8 (Carbohydrates)  
 Section cross-reference(s): 22

ST alditol addn maleate catalyzed metal ion; alkylation rate alditol maleate metal catalyst; aldonic acid

IT Addition reaction  
 (metal ions catalyzed, of alditols with aldonic acids)

IT Carbohydrates and Sugars, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alditols, metal ions catalyzed addition of, with maleates)

IT Carbohydrates and Sugars, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (aldonic acids, metal ions catalyzed addition of, with alditols)  
 IT Compound (C20H15La2Na3O23), precipitate  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 IT 371-47-1, Disodium maleate 50977-65-6, Dilithium maleate  
 RL: PROC (Process)  
 (addition of, to alditols in presence of metal ion)  
 IT 107-21-1, 1,2-Ethanediol, reactions 111-46-6, Diethylene glycol,  
 reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition of, to maleate in presence of metal ion)  
 IT 149-32-6, meso-Erythritol 131530-64-8  
 RL: PROC (Process)  
 (addition of, with maleate in presence of metal ion)  
 IT 56-81-5, 1,2,3-Propanetriol, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition of, with maleate in presence of metal ion)  
 IT 546-68-9P 7388-28-5P 7446-70-0, Aluminum chloride, reactions  
 7447-39-4, Cupric chloride, reactions 7550-45-0, Titanium tetrachloride,  
 reactions 7646-79-9, Cobalt dichloride, reactions 7646-85-7, Zinc  
 chloride, reactions 7705-08-0, Ferric chloride, reactions 7718-54-9,  
 Nickel dichloride, reactions 7758-94-3, Ferrous chloride 10024-93-8,  
 Neodymium chloride 10025-76-0, Europium chloride 10025-82-8, Indium  
 chloride 10026-11-6, Zirconium tetrachloride 10043-52-4, Calcium  
 chloride, reactions 10099-58-8, Lanthanum chloride  
 10138-62-2, Holmium chloride 10361-37-2, Barium chloride, reactions  
 10361-91-8, Ytterbium chloride (YbCl3) 13450-90-3, Gallium trichloride  
 RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (catalyzed addition by, of alditols to maleate)  
 IT 7440-70-2DP, Calcium, aldonic acid complex  
 RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (complexation of, with aldonic acids)  
 IT 52972-73-3P 52972-74-4P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and addition of, with maleate in presence of metal ion)  
 IT 34128-01-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and complexation of, with calcium)  
 IT 676-46-0P 26535-75-1P 131530-65-9P 131530-66-0P 131530-67-1P  
 131530-80-8P 131530-81-9P 131530-82-0P 131530-83-1P 131530-84-2P  
 131530-92-2P 131530-93-3P 131543-36-7P 131543-37-8P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and complexation of, with calcium ion)  
 IT 69-65-8P, D-Mannitol 537-03-1P 7439-91-0DP, Lanthanum,  
 ethylenedioxydibutanedioic acid hydroxide complexes 16426-50-9P  
 55203-11-7DP, lanthanum complexes 86282-31-7P 131530-43-3P  
 131530-85-3P 131530-86-4P 131530-87-5P 131530-88-6P 131530-89-7P  
 131530-90-0P 131530-91-1P 131530-95-5P 131530-96-6P 131530-97-7P  
 131530-98-8P 131530-99-9P 131531-00-5P 131531-01-6P 131531-02-7P  
 131613-97-3P 131613-98-4P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 IT 62-76-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, in synthesis of poly(hydroxy)carboxylates)



ORIGINAL REFERENCE NO.: 110:35139a,35142a

TITLE: Lanthanide(III)-catalyzed addition of glycolate to maleate. Investigation of intermediates using multinuclear magnetic resonance spectroscopy

AUTHOR(S): Van Westrenen, Jeroen; Peters, Joop A.; Kieboom, Antonius P. G.; Van Bekkum, Herman

CORPORATE SOURCE: Lab. Org. Chem., Delft Univ. Technol., Delft, 2628, Neth.

SOURCE: Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1988), (11), 2723-8  
CODEN: JCDTBI; ISSN: 0300-9246

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 110:211802

AB The lanthanum(III)-catalyzed addn. of glycolate to maleate to yield (carboxymethoxy)succinate(3-) (cmos) is described. The reaction proceeds only above pH 6, indicating the formation of diionized glycolate as a preequil. for the rate-limiting step, i.e., the addition of the CH<sub>2</sub>O- moiety to the olefinic bond. Due to strong complexation of LaIII by cmos, the reaction requires one LaIII ion per two cmos formed. The inhibitory effects of nonreacting strong chelators such as ethylenediaminetetraacetate, nitrilotriacetate, and 2,6-pyridinedicarboxylate indicate the formation of mixed-ligand complexes leading to the addition reaction. This has been confirmed by GdIII-induced <sup>13</sup>C relaxation rate enhancements and DyIII-induced <sup>17</sup>O shift measurements.

CC 22-4 (Physical Organic Chemistry)

ST glycolate addn maleate lanthanum kinetics; gadolinium magnetic relaxation glycolate maleate; dysprosium NMR oxygen glycolate maleate

IT Addition reaction catalysts  
(lanthanum(3+), for glycolate with maleate)

IT Magnetic relaxation  
(of carbon-13, in gadolinium-containing glycolate-maleate system)

IT Kinetics of addition reaction  
(of glycolate with maleate in presence of lanthanum(3+))

IT Nuclear magnetic resonance  
(of water-d<sub>2</sub> in glycolate-maleate system containing dysprosium(3+), oxygen-17)

IT 2836-32-0, Sodium glycolate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition reaction of, with disodium maleate in presence of lanthanum(3+), kinetics of)

IT 371-47-1, Disodium maleate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(addition reaction of, with sodium glycolate in presence of lanthanum(3+), kinetics of)

IT 10099-58-8, Lanthanum trichloride  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for addition of glycolate to maleate)

IT 10168-81-7, Gadolinium trinitrate  
RL: PRP (Properties)  
(magnetic relaxation of carbon-13 in glycolate-maleate system in presence of)

IT 10025-74-8, Dysprosium trichloride  
RL: PRP (Properties)  
(oxygen-17 NMR of water-d<sub>2</sub> in glycolate-maleate system containing)

IT 7789-20-0, Water-d<sub>2</sub>  
RL: PRP (Properties)  
(oxygen-17 NMR of, in glycolate-maleate system containing dysprosium(3+))

IT 34128-01-3P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

=> LOG HOLD

(FILE 'HOME' ENTERED AT 16:19:18 ON 18 MAY 2009)

FILE 'CASREACT' ENTERED AT 16:20:11 ON 18 MAY 2009

L1 STRUCTURE UPLOADED  
D L1

L2 16 SEA FILE=CASREACT SSS SAM L1 ( 116 REACTIONS)

FILE 'CAPLUS' ENTERED AT 16:26:14 ON 18 MAY 2009

FILE 'REGISTRY' ENTERED AT 16:26:30 ON 18 MAY 2009

FILE 'CASREACT' ENTERED AT 16:26:42 ON 18 MAY 2009

L3 1842 SEA FILE=CASREACT SSS FUL L1 ( 11009 REACTIONS)

FILE 'CAPLUS' ENTERED AT 16:27:50 ON 18 MAY 2009

SET LINE 250  
SET DETAIL OFF  
E SCANDIUM+ALL/CT  
SET LINE LOGIN  
SET DETAIL LOGIN  
SET LINE 250  
SET DETAIL OFF  
E LANTHANUM+ALL/CT  
SET LINE LOGIN  
SET DETAIL LOGIN  
SET LINE 250  
SET DETAIL OFF  
E RARE EARTH METALS+ALL/CT  
SET LINE LOGIN  
SET DETAIL LOGIN  
SET LINE 250  
SET DETAIL OFF  
E ACTINIUM+ALL/CT  
SET LINE LOGIN  
SET DETAIL LOGIN

L4 11 SEA FILE=CAPLUS SPE=ON PLU=ON L3 AND ((SCANDIUM OR "GROUP  
IIIB ELEMENTS") OR (LANTHANUM OR "RARE EARTH METALS") OR  
(ACTINIUM OR "ACTINIDES"))  
D L4 IBIB ABS IND 1-11

COST IN U.S. DOLLARS

SINCE FILE TOTAL

ENTRY SESSION

FULL ESTIMATED COST

66.08 195.91

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE TOTAL

ENTRY SESSION

CA SUBSCRIBER PRICE

-9.02 -9.02

SESSION WILL BE HELD FOR 120 MINUTES

STN INTERNATIONAL SESSION SUSPENDED AT 16:35:50 ON 18 MAY 2009